

Abstract

This project is a study of the notion of subjective probability and its applications in statistical physics and thermodynamics. The ideas of subjective probability are then used to make inferences on the optimality in thermodynamic processes involving maximum work extraction. This thesis starts with the definition of probability and the difference between the objective and subjective schools of thought in Chapter 1. This includes an analysis of a typical inverse probability problem which is solved using the Bayesian Statistics. In chapter 2, some of the pertinent literature related to this project are reviewed. In Chapter 3, there is an account of an application of this technique to make inferences about identical thermodynamic systems undergoing maximum work extraction process. In Chapter 4, there is an account of an attempt to extend the inference making protocol for non-identical systems. Finally, the thesis ends with the future possibilities and related exercises that can be undertaken.